



Naval Surface Warfare Center, Dahlgren Division

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www.navsea.navy.mil/nswc
www.navsea.navy.mil/nuwc

NAVSEA WARFARE CENTERS



DETACHMENTS

NSWC CARDEROCK DIVISION

ACOUSTIC RESEARCH DETACHMENT
BAYVIEW - IDAHO

ACOUSTIC TRIALS DETACHMENT
CAPE CANAVERAL - FLORIDA

COMBATANT CRAFT DIVISION
NORFOLK - VIRGINIA

LARGE CAVITATION CHANNEL
MEMPHIS - TENNESSEE

NAVAL SUBMARINE TRAINING CENTER, PACIFIC
PEARL HARBOR - HAWAII

PUGET SOUND DETACHMENT
SILVERDALE - WASHINGTON

SPECIAL TRIALS FACILITY
PATUXENT RIVER - MARYLAND

SOUTH FLORIDA TESTING FACILITY
DANIA - FLORIDA

NSWC CORONA DIVISION

NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT NORCO
SEAL BEACH - CALIFORNIA

NSWC CRANE DIVISION

FALLBROOK DETACHMENT
MARINE CORPS PROGRAMS
FALLBROOK - CALIFORNIA

NSWC EODTECH DIVISION

EOD TECHNICAL SUPPORT DETACHMENT
INDIAN HEAD - MARYLAND

NSWC INDIAN HEAD DIVISION

PICATINNY DETACHMENT
PICATINNY - NEW JERSEY

SPECIAL WEAPONS DEPARTMENT
MCLESTER - OKLAHOMA

NSWC PORT HUENEME DIVISION

WHITE SANDS DETACHMENT
WHITE SANDS - NEW MEXICO

NUWC KEYPORT DIVISION

PACIFIC DETACHMENT
WAHIAWA - HAWAII

SAN DIEGO DETACHMENT
SAN DIEGO - CALIFORNIA

NUWC NEWPORT DIVISION

ATLANTIC UNDERWATER TEST & EVALUATION CENTER
ANDROS ISLAND - BAHAMAS

ATLANTIC UNDERWATER TEST & EVALUATION CENTER
WEST PALM BEACH - FLORIDA

NSWC Dahlgren Division



Updated 2/12

How We Got Here

NSWC Dahlgren: A Legacy of Evolution & Revolution

➤ **1918**

1940

1950

1960

1970

1980

1990

2000+

TODAY and the Future

➤ Systems Engineering

- Combat Systems
- New Warfare Concepts
- Ballistic Missile Defense
- Integrated Warfare Systems

- Electric Weapons
 - Multi-use (Sense, ID, Engage)
 - Scalable effects
 - Lower cost

➤ Computational Sciences

- Targeting
- Strategic Fire Control Computation
- Digital Fire Control

- Advanced materials
 - Toppide Design
 - Control of RF environment

- Distributed Networked Systems

- Integration of Unmanned and Autonomous Systems

- Advanced Sensors

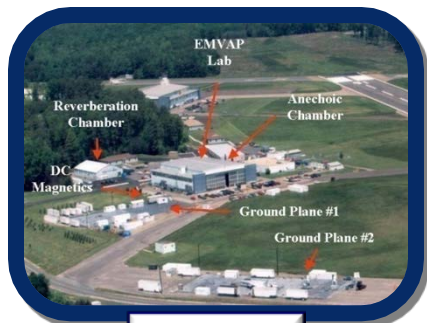
➤ Research & Development

- Math, Physics, Chemistry, Engineering

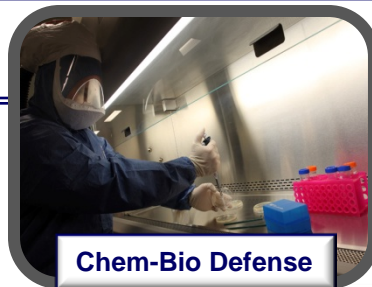
➤ Test & Evaluation

NSWCDD, Dahlgren, Virginia

Integrated Capabilities



E3 Testing



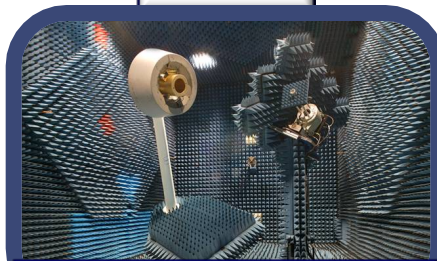
Chem-Bio Defense



Railgun



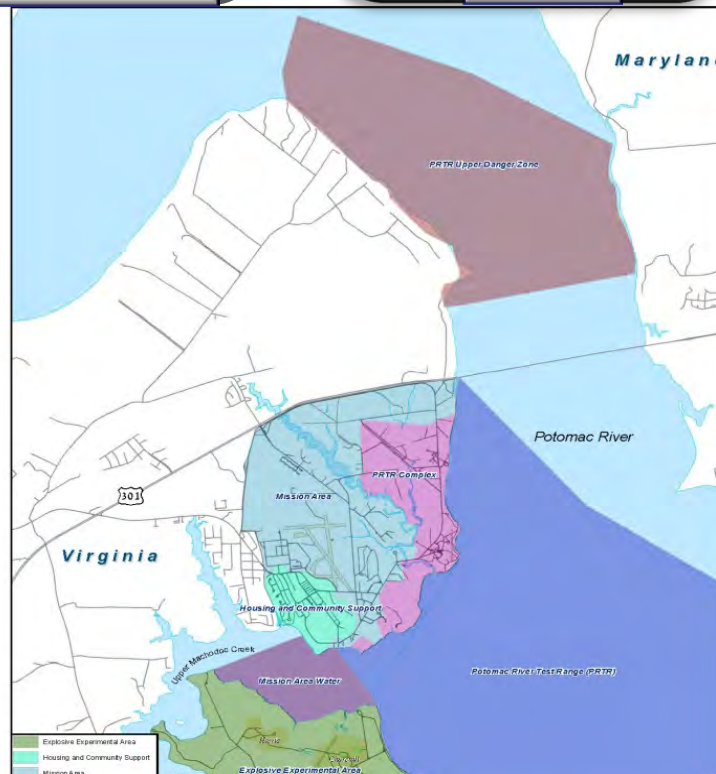
Naval Directed Energy Center



**Sensors and Surface
Combat Systems Facility**



SLBM Fire Control Systems



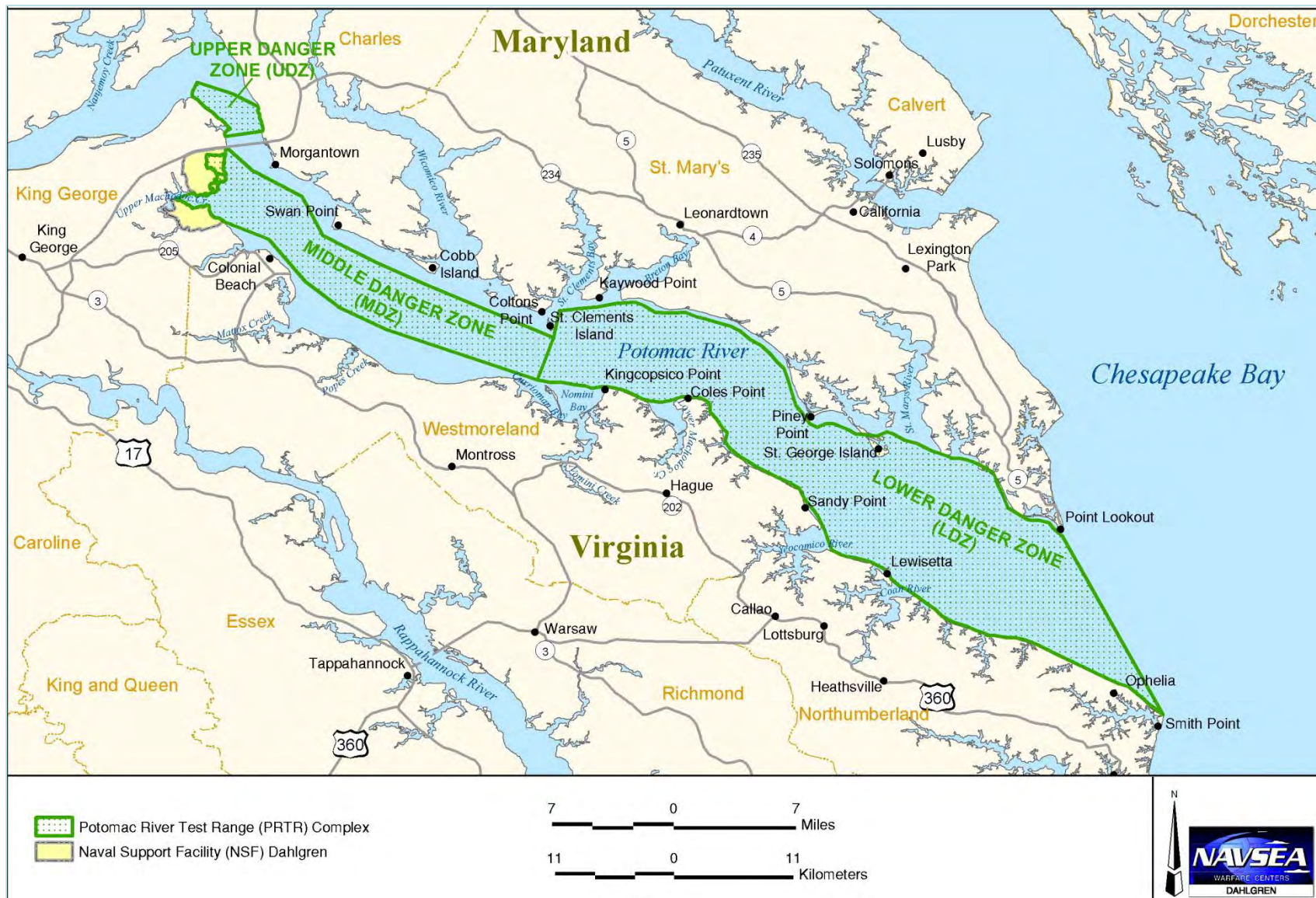
Ordnance Testing



Tomahawk

Over 90 years of providing capabilities and innovative solutions in the areas of weapons and sensor systems, and combat systems.

Potomac River Test Range Complex



NAVSEA's Hampton Roads Warfare Center

**NSWC
Dahlgren Division**

**Direct Coordination with
Training Commands**



**Joint and Coalition
Warfighting**

"VACAPES OPERATING AREA"

The Only Test and Training space in the world covered by land-based SPS-48 SPS-49 and SPY 1 Radars.



**Emergency Homeland
Defense Capability**



**CDSA, Dam Neck
Command**

***Celebrating our 50-year Heritage of Complex Mission Critical Systems,
Software and Hardware Engineering, Development & Life Cycle Services for Real-Time
Tactical Systems Co-Located with Hampton Roads Warfighter and Training Commands
and the US Atlantic Fleet***

NSWC Dahlgren Division Program Areas

G Engagement Systems

- Advanced Weaponry
- Expeditionary Weapon Sys.
- Guns and Munitions
- Launcher Systems and Integration
- Lethality, Vulnerability, and Systems Effectiveness
- Small Boat & Land Vehicle Systems Integration
- Systems Safety Eng
- Test and Evaluation
- Unmanned Systems Integration

K Strategic & Weapon Control Systems

- Strategic Systems Programs
- Surface and Under Sea Warfare
- Tomahawk
- Aegis Weapons Control Systems
- Littoral Combat Ship Surface Warfare
- Vertical Launch System

Q Electromagnetic & Sensor Systems

- Surface Ship Radars
- Directed Energy/CIED
- E3 Programs: Systems Engineering, Radiation Hazards Program, HERO, SEMCIP/EM, Electro-optic/Infrared (EO/IR) Systems
- Spectrum Engineering Management
- Topside Design
- Advanced Computational Technologies
- Electronic Warfare (EW) Systems Integration

W Warfare Systems

- Combat Control & Integration
- Future Warfare Systems Engineering
- Warfare Analysis
- Warfare Systems Tech & Concept Exploration
- Open Architecture (OA)
- BMD Systems Engineering
- Human Systems Integration
- Joint Track Management
- Naval Integrated Fire Control

Z Asymmetric Systems

- Chemical-Biological & Radiological Defense (CBRD)
- Identity Management, Biometrics, & Forensics
- Mission Assurance
- Tagging, Tracking, & Locating (TTL)
- Anti-Terrorism and Force Protection (AT/FP)

F Maritime and Joint Systems

- Integrated Training Capabilities
- Force Integration & Inter-operability
- Integrated Combat Control Systems
- Global Maritime Security



NSWCDD Technical Capabilities



- ❖ Force & Surface Platform Level Warfare Systems Analysis and Modeling
- ❖ Weapon Systems Analysis, Effects, and Effectiveness
- ❖ Radar and Electro-Optic Systems RDT&E
- ❖ Surface Warfare Systems Engineering & Integration RDT&E
- ❖ Surface Combat Systems Engineering & Integration RDT&E
- ❖ Surface Combat Control Systems S&T, RDT&E
- ❖ Surface Conventional Weapon Control Systems RDT&E
- ❖ Surface Warfare System and Force Level Certification/IV&V
- ❖ Human Systems Integration Science and Engineering
- ❖ Missile Systems Integration
- ❖ Surface Conventional and Electromagnetic Gun Systems RDT&E
- ❖ Directed Energy Systems RDT&E
- ❖ Weaponization of Surface & Air Unmanned Systems
- ❖ Marine Corps and Other Weaponry Systems RDT&E
- ❖ Re-Entry Systems
- ❖ Strategic Mission Planning, Targeting, and Fire Control Systems
- ❖ Surface Electronic Warfare Systems Architecture & Combat System Integration RDT&E
- ❖ Surface Warfare Systems Safety
- ❖ Surface Warfare Electromagnetic Environmental Effects
- ❖ Chemical, Biological and Radiological Warfare Defense Systems RDT&E
- ❖ National Response Missions, Including Homeland Security and Defense
- ❖ Physical & Non-Physical Vulnerability Analysis
- ❖ Force Level Warfare Systems Engineering and Integration
- ❖ Force Level Warfare Systems Interoperability Engineering
- ❖ Integrated Surface Combat Control Systems Support
- ❖ Integrated Training Systems
- ❖ Radar Distribution Systems
- ❖ Joint Command and Control Systems Integration and Architecture Development

•Indicates work performed at
CDSA, Dam Neck



NSWCDD FY12 Numbers



Business Baseline

\$1.5 BILLION

Total Contracting Effort

\$676.9M

Buildings Occupied

209

Total Square Feet

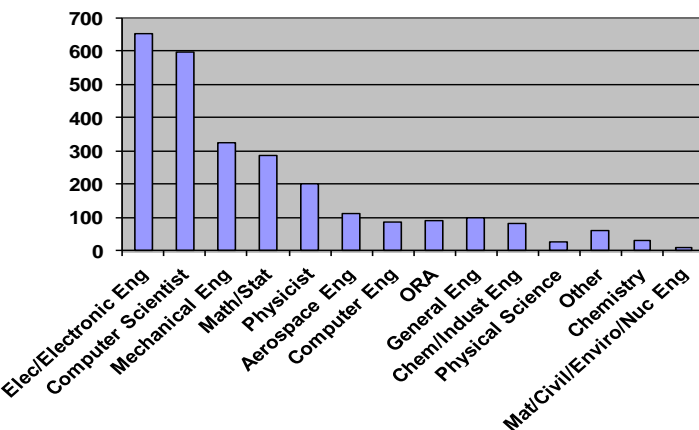
1,923,410

Civilian Staffing

Total # of Employees

3,760

S&E DISCIPLINES



SCIENTISTS & ENGINEERS

2,628

Workforce Education

BACHELORS	1975
MASTERS	933
DOCTORATE	137

Average Years of Service

14

Total Military

38

Average Age of Workforce

43

Gross Pay Surrounding Counties Virginia:

Caroline	8.8 M
Fredericksburg	21.6 M
King George	118.9 M
Spotsylvania	69.0 M
Stafford	43.5 M
Westmoreland	16.9 M

Maryland:

Anne Arundel	.9 M
Calvert	.5 M
Charles	15.1M
Prince Georges	2.7 M
St. Mary's	3.9 M



Contracting Efforts

Total Contracting Effort (DL)
\$ 676.9M

Total Number of
Badged Contractors
Supporting NSWCDL:

1997

Employment Levels

Civilian Total
3415

Caroline	95
Fredericksburg	232
*King George	1165
Spotsylvania	672
Stafford	408
Westmoreland	190
Anne Arundel	10
Calvert	5
Charles	146
Prince Georges	27
St. Mary's	39
Other Counties	326

* Third highest concentration of STEM jobs in US.
- 2011 U.S. Chambers of Commerce report.

Teaming with Industry and Academia

CRADAS (41 Existing)

- Montana State University (2)
- George Mason University (3)
- Alidade, Incorporated
- Northrop Grumman Space & Mission Systems Corporation
- Market Central, Inc.
- TORC Technologies
- Oilton Remote Detection Technologies, Inc.
- Absecon Mills, Incorporated
- Sky Research, Inc.
- Massachusetts Institute of Technology
- Christopher Newport University
- Pennsylvania State University, Applied Research Laboratory
- University of Vermont
- Loyola University Chicago, Stretch School of Medicine
- Johns Hopkins University
- Mustang Technology Group, LP
- Dover Networks/Keith E. Mellinger
- Solvay Chemicals, Inc.
- University of South Carolina
- Mountain State Information Systems
- University of Louisville Research Foundation
- University of Oklahoma Health Sciences Center
- Aeroprediction, Inc.
- Baker Engineering and Risk Consultants, Inc.
- Compsim LLC
- University of Missouri
- DRS, Sensors & Targeting Systems, Inc.
- ATK Advanced Weapons Division
- Insitu, Inc.
- Johns Hopkins University Applied Physics Laboratory
- Cardinal Scientific
- Boise Technology
- Lockheed Martin Information Systems and Global Solutions
- Navistar Defense
- Wildcat Metallurgy
- Burbank Water and Power
- VA Tech
- Arizona State University
- 3 CRADAs Being Prepared

Educational Partnerships (28 EPAs and 3 MOUs)

- Montana State University
- University of Mary Washington
- Virginia Tech (EPA, MOU)
- Fredericksburg City Schools
- King George County Schools
- Spotsylvania County Schools
- Stafford County Schools
- Liberty University
- George Mason University
- New Mexico State University
- Caroline County Schools
- Virginia Commonwealth University
- Portsmouth City Schools
- Massachusetts Institute of Technology
- Christopher Newport University
- Rose-Hulman Institute of Technology
- Technical Directors – Naval Warfare Technical Teams (MOU)
- VA Beach City Public Schools
- Howard University
- Hampden-Sydney College
- Orange County Public Schools
- Norfolk Public Schools
- Westmoreland County Public Schools
- Richmond County Public Schools
- Longwood University
- Colonial Beach Public Schools
- Somerset County Public Schools
- Polytechnic University of Puerto Rico
- Space and Missile Defense Command
- Lancaster County Public Schools

2012 Summer Faculty Research Program (3) and Sabbatical Leave Program (1)

- 3 Professors Selected for the 2012 SFRP
 - New Mexico State University
 - Texas Tech University
 - Virginia Tech
- Johns Hopkins University (SLP)

Grants, Cooperative Agreements, Contracts (9)

- Virginia Tech
- College of William and Mary
- University of Arkansas
- Clemson University
- Potomac Institute for Research Studies
- University of Washington
- University of Alabama
- University of North Carolina
- North Carolina State University

Industry Partners (FY12 Top 5)

- Lockheed Martin
- URS
- Northrop Grumman
- BAE Systems
- SAIC

Work for Private Parties

- 15 Existing Agreements
- 8 Agreements Established in FY13
- 3 Amendments Established in FY13
- 5 Agreements Being Prepared

NSWCDD Computation and Analysis Building (Bldg 1200)

Background

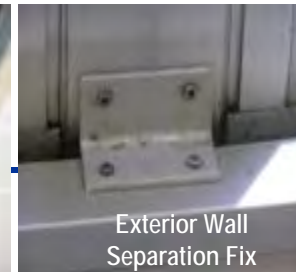
- Bldg1200 was constructed in 1964 and is a multi-addition facility in an advanced state of deterioration
- The facility property record indicates that Bldg1200 has a quality rating of 0 on a scale of 0-100
- Critical shipboard equipment valued at \$45M and 166 technical personnel are at risk
- NSWCDD has 17 major buildings that house 85% of the workforce. Of these, Bldg 1200 presently consumes 20% - 30% of the total annual SRM budget

Bldg 1200 Replacement MILCON

- MILCON P-287 was first submitted in the FY2001 FYDP
- Provides facility replacement for Bldg 1200
- Consolidates the Submarine Launched Ballistic Missile (SLBM) program from three facilities to one location
- Constructs 57,646 SF addition to Bldg 1560; includes secure computational and analysis laboratory space; critical Fleet weapon control systems and technical office space
- Demolishes Bldg 1200 (112,472 SF) for a 49% net footprint reduction; \$30.36M per latest 1391 submission for POM15

Challenges

- P-287 has been in the MILCON queue for 12 years without achieving funding appropriation
- Navy construction rules severely limit what can be done to improve Bldg 1200 structural and system deficiencies
- NSWCDD currently faces critical space shortages



What's at Risk if Bldg 1200 was no longer habitable?

- Required SLBM Software updates to meet system upgrades and emergent strategic targeting needs could not be accomplished, impacting deployed capabilities and schedules for SLBM Fleet
- Capability to address/solve SLBM Fleet Software problems, questions & issues severely impacted
- The current facility condition puts the SSBN Fleet and USSTRATCOM at risk to execute today's and tomorrow's at-sea nuclear deterrence mission

Questions

